

## Ecological, Social, and Economic Context

### **Setting**

The Black Hills is composed primarily of ponderosa pine forest. The forest has changed dramatically since Euro-American settlement in the 1800's. Intensive grazing, selective harvesting of large trees and fire suppression has led to changes in forest structure and composition that are unprecedented in the evolutionary history for these frequent fire ecosystems. These changes have decreased biological diversity, increased risk of stand-replacing crown fires, and increased vulnerability to disease and insect outbreaks that will compromise the long-term sustainability of the ecosystem and surrounding communities. The Black Hills of South Dakota and Wyoming are known as "the Forest" of South Dakota and Great Plains. It's national, regional, and local importance has been identified by politicians, visitors, and residents. It is a forested "Island in the Plains" revered by Indian tribes and treasured by visitors for its beauty and national treasures (Mount Rushmore National Memorial, and Crazy Horse Mountain.) This area is home to many small communities and numerous enclaves of homes. The public and private forests are working forests providing valuable public benefits, including critical wildlife habitat, magnificent hunting and sight-seeing opportunities, biodiversity, clean water, wood products, superb recreational access and opportunities, and other ecosystem services (such as carbon sequestration.) These benefits support rural jobs and economies and a high quality of life. While some of the landscape is ecologically intact and functioning properly, much is in need of restoration to keep the forests thriving and sustainable. By investing in a focused portion of this landscape, there is an opportunity to return most of the landscape to a highly functioning condition. The Black Hills National Forest is positioned to increase restoration across the landscape because this area sustains a resilient timber industry which makes these restoration efforts economically and socially viable, while sustaining local communities.

The partners in the "Black Hills Collaborative Forest Landscape Restoration Project" will increase the resiliency, diversity, and productivity of the large landscape known as the Black Hills. This "Island in the Plains" includes 1.2 million acres of National Forest System (NFS) lands (80% of area) with approximately 255,000 acres (16% of area) of intermixed private lands and communities, and several National Monuments and Parks and State Parks (4% of area.) Most of NFS lands are within 3 miles of one of 56 at-risk communities in the Black Hills. Due largely to fuel buildup (denser forests) and climate, recent wildfires, like the 86,000-acre Jasper fire of 2000, easily traveled three miles in an afternoon burning period. Over 10% of the Forest has burned under severe and intense conditions in the last 10 years. Thousands of miles of public/private boundaries means this type of fire behavior and extent creates human health and safety concerns, as well as economic and some ecological concerns.

The Forest Service recently completed a forest-wide travel plan (March 22, 2010) to improve management of motorized vehicles on the National Forest and reduce negative impacts to

cultural sites, reduce user conflicts, and improve soil, water, and other natural resource conditions;. This designated an open set of roads and trails and drastically reduced motorized cross-country travel on 864,000 acres. There is a need to rehabilitate, close, and realign roads and unauthorized trails to restore ecosystem function.

Watersheds are susceptible to damage from high-intensity storms following high-severity wildfire. The restored landscape would increase the likelihood of low-intensity fire, which is a process of properly functioning watersheds. Restoring more open “park-like” forest conditions recorded by the Custer Expedition in 1874 is expected to also restore historic stream flows which were more perennial had more lush riparian growth .

### **Current Vegetation**

In the absence of the historic fire regime and active management, the mosaic of vegetation on the Forest has evolved into a homogeneous landscape of densely stocked ponderosa pine. The current homogeneous landscape found in the Black Hills National Forest present ideal conditions for a large-scale mountain pine beetle infestation and/or a stand replacing wildfire. While both mountain pine beetle mortality and wildfire can provide habitat diversity, large-scale events greatly simplify the landscape and habitat diversity.

The majority (95%) of the Black Hills has a ponderosa pine cover type. Other cover types include: meadow/grass (1%), hardwoods (2%), white spruce (<1%), shrubs (<1%), and non-vegetated areas (<1%) which are large granite rock outcrops, limestone plateau, and lakes. Riparian vegetation areas also occur, but as inclusions within other cover types.

Thirty percent of the Forest has mature trees with greater than 70% canopy closure. An additional 20 percent is in the sapling/pole size class with greater than 70% canopy closure. The average number of standing dead trees per acre for diameter class 9 inch plus diameter trees by management area on conifer sites with a height 25 feet or greater is 3.5 snags for year 2009. A total of 18,588 acres of burned forest habitat was created and largely retained over the last 7 years.

The Weed Environmental Assessment signed in January 2003 has an estimate of approximately 82,000 acres with invasive plants. Our current estimate is closer to 180,000 acres. A portion of the increase in our acreage estimates is due to the spread of weeds, but much of this increase is because of improved inventory methods. Some of the new infestations are a result of large fires over the past several years.

### **Restored Vegetation**

Restored landscape will have more aspen, birch, spruce, shrubs and forbs and less ponderosa pine cover. Ponderosa pine forests will be less dense with larger trees in clumps and groups, with interspersed openings. Understory trees will be considerably less dense with dramatically reduced susceptible to fire laddering to the canopy. The bark beetle hazard will also be

substantially reduced herbaceous vegetation will provide increased opportunities for wildlife forage and traditional medicinal and food plant gathering.

The restored forest will be more resilient to natural disturbances such as fire and mountain pine beetle and better adapted to changing climate. The restored conditions will shift from fire condition class II toward condition class I. Restoration will reduce ponderosa pine density; improve spatial heterogeneity where it exists; protect old-growth ponderosa pine; increase structural diversity in the long term; and create fuel conditions that reduce the likelihood of uncharacteristic fires, by reestablishing the high-frequency, low-intensity historic fire regime. Both commercial and noncommercial treatments will be accomplished with mechanized equipment and by hand treatment. As a means of reintroducing fire to the landscape, post-harvest prescribed fire will occur. The intent is to reduce surface and ladder fuels, create conditions favorable to the growth of grasses, forbs, and shrubs, and then to continue using wildfire as a management tool to maintain these ecosystems overtime.

The Forest is commercially harvesting around 20,000 - 30,000 acres per year, or 2 percent of the suitable forestlands per year. Commercial thin is currently the dominant tree harvest prescription. In order to move towards more sapling structural stages and less mature tree structural stages, the Forest needs to implement more overstory removals or harvest methods which the understory is the dominant structural stage.

### **Fish and Wildlife Habitat**

This restoration will maintain a diversity of habitats, particularly for sensitive species. This will also improve habitat for fish and other aquatic organisms by reducing the risk of catastrophic wildfire and the potential for excessive nutrient and sediment loads into streams and lakes. Excessive sediment input into Lakota Lake and Horsethief Lake have reduced the quality of the fish habitat at these sites. Proposed riparian and hardwood restoration treatments will increase stream shading and improve aquatic ecosystems, including fish habitat.

This restoration will improve habitat for wildlife by reducing its susceptibility to wildfire and insect attacks and increase habitat diversity. Restoration will improve understory forage for deer and elk by opening the canopy. It will improve habitat for species that use large trees and large snags, such as raptors, brown creepers, and pygmy nuthatches. A natural disturbance pattern with irregular patch size, patch shape and tree spacing will create a mosaic of dense and open habitat of varying tree sizes that provide the diversity of habitats needed by wildlife species that occur in the Black Hills.

Prescribed fire will release nutrients into the soil, which in turn, leads to increased plant growth and vigor, promoting more vegetation sprouts, flowers, seeds and insects. This will improve habitat for herbivores such as deer and elk, insectivorous birds, and nectar-seeking animals such as bees, butterflies, and hummingbirds. Area with prescribed fire will provide a valuable food source for predators as their prey become temporarily vulnerable. Prescribed fire will reduce

pine encroachment into meadows, making more forage available to herbivores. Prescribed fire will increase snags that provide habitat for woodpeckers and large log habitat as the trees fall. The prescribed fires are expected to create a complex mosaic of burned and unburned habitat. This mosaic is important in maintaining the diversity of wildlife species that occur on the Black Hills.

Riparian and spring restoration activities will improve habitat for most wildlife species because almost all wildlife uses riparian areas and streams to some degree. Species that are closely tied to riparian habitat, such as song sparrows (Forest MIS), amphibians, and small mammals will benefit the most from riparian and spring restoration activities.

Meadow restoration will improve habitat for many species that use meadows and grassland areas such as elk, deer, turkeys, and small mammals. Pine continues to encroach into these areas in the absence of fire. The shrubs and forbs stimulated by forest openings and burning will be beneficial for traditional and cultural foods and medicinal gathering.

## **Wildfire**

Fire has played a significant role in the ecology of the Black Hills.<sup>1</sup> Fire history studies show mean fire-return intervals ranging from 10 to 30 years. If fires had been allowed to burn over the last 100 years, significantly more acres would have burned at a more frequent interval and a lower intensity. Current conditions favor wildfires of higher fire intensity than historically occurred. Proposed treatments would reduce stand density and canopy closure bringing the forest back to a more historical open-grown condition. Fire behavior characteristics would be mixed severity as opposed to those areas not treated which would experience more high severity to stand replacement fire behavior. The ability to successfully use fire to achieve resource management objectives while protecting resource values would increase. The Fire Regime Condition Class will improve from Condition Class 3 to Condition Class 1, in which the threat of losing key ecosystem components in a severe wildfire is minimal. Projects on adjacent lands combined with the treatments proposed would decrease the hazardous fuels much more efficiently for longer periods of time, thus allowing more opportunity for a natural fire regime to occur and be sustained.

Very few of the natural fuel breaks and prior treatment areas are large enough to moderate a rapidly spreading high-intensity fire. A large-scale, high-intensity fire is more probable without additional restoration treatments. A fire start in the Greater Rushmore Area (under the right conditions) would not only threaten, damage or destroy improvements in the immediate area, but also has the potential to burn into or affect communities such as Keystone, Hill City, Custer, and Hayward within one burning period (12 hours). A large-scale, high-intensity wildfire in key

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<sup>1</sup> Shepperd, W.D. and M. Battaglia, 2002. Ecology, Silviculture and Management of Black Hills Ponderosa Pine. Rocky Mtn. Res. Sta. GTR-97, pg. 36-41. Fort Collins, CO.

areas such as the Greater Rushmore Area puts many more structures and significant national landmarks at great risk.

Wildfire has burned 186,000 acres in the Black Hills in the last decade, the largest being the Jasper Fire that consumed 83,000 acres in four days. The explosive fire runs made in the largest fires consumed private homes and structures and caused the evacuation of Deadwood, SD, a significant tourist destination. Emergency suppression costs in the six biggest fire seasons averaged about \$6 million annually. Restoration treatments are expected to reduce that amount by an estimated \$3 million annually, by creating a fuel profile and fuel breaks conducive to ground fire.

Seedlings have been planted on approximately 300 acres per year in the severe burned areas of the Jasper fire to provide a future ponderosa pine seed source for the area. While aspen has flourished after the fire, some of the older aspen stands have been treated to improve stand health.

Wildfire in the current conditions threatens firefighter and public health and safety, national monuments, private property, fish and wildlife habitat, soil productivity, air quality, water quality, and other ecosystem functions. The projected high level of surface fuel loading (40-60 tons/acre) as a result of the current mountain pine beetle epidemic could result in severe fire behavior.

The entire Black Hills Forest is included within individual County Community Wildfire Protection Plans (CWPP). The Black Hills Project Area encompasses two community wildfire protection plans: Custer County CWPP and Pennington County CWPP.

The majority of the benefits from this project would be long term. They are difficult to value in terms of dollars. Substantial non-monetary benefits include: increased firefighter and public health and safety, reduced risk of fire on critical infrastructure, critical fish and wildlife habitat, soil productivity, clean air, and most importantly, functional fire-adapted ecosystems.

### Summary of Landscape Strategy

*A Landscape Restoration Strategy for the Black Hills National Forest – an Island in the Plains* was completed May 2010 and is available on the internet at [Black Hills National Forest- Land & Resources Management](#). This landscape strategy encompasses the entire Black Hills National Forest and its intermingled and adjacent private and public lands. This strategy: embraces ecological, economic and social sustainability; leverages local resources with national and private resources; facilitates reduction of wildfire management costs by reestablishing natural fire regimes and reducing the risk of uncharacteristic wildfire; demonstrates restoration techniques that achieve ecological and watershed health objectives; affects wildfire activity and management costs; and shows that forest restoration byproducts can offset treatment costs while benefiting local rural economies and improve forest health.

The overall goal of Black Hills treatments is to reset ecosystem trends towards a natural range of variability and to reestablish natural processes. The objective over the long-term is to facilitate the reestablishment of a multi-scale mosaic of age and structural classes through mechanical thinning, prescribed fire, and reintroduction of natural fire and other processes, which will work together to approximate the natural range of conditions in southwestern ponderosa pine forests. More specifically, restoration treatments will retain pre-settlement trees; retain post-settlement trees as needed to establish a range of desired future forest conditions; thin and remove hazardous fuels; utilize fire to emulate natural disturbance regimes; allow for the management of wildland fires to achieve ecological objectives; and reestablish understories in which native, rather than exotic, species thrive. Natural variability (spatial heterogeneity) of existing forest structure (groups of clumps of trees and existing large trees) will be incorporated into the treatment design. Treatments will be designed to achieve a range of post treatment conditions with regard to vegetation structure and composition to effectively reduce fire danger, improve wildlife habitat, and improve forest ecosystem resiliency in the long term. Successful restoration will allow low-severity fire to easily and inexpensively shape forest conditions in the future. This, in turn, will reduce the need for future maintenance thinning.

The following objectives serve as the landscape strategy to move towards more natural processes in a fire-adapted ecosystem.

1. Manage 50-75% of the wildland-urban interface for moderate-to-low fire hazard and reduce fire hazard within proximity of structures... (Objective 10-01). Manage 50% of the remainder of the Forest, with some exceptions, to moderate-to-low fire hazard. (Objective MA 5.4A).
2. Where outbreaks of mountain pine beetle could present risks to management objectives for ponderosa pine, reduce acreage of ponderosa-pine stands that are in medium or high risk for infestation. (Objective 10-07).
3. Maintain or enhance hardwood shrub communities where biologically feasible, and within management objectives. (Objective 5.1-203).
4. Manage for varied structural stages in ponderosa pine across the management area in a variety of sizes and shapes. Ten percent of mature trees will be very large. Seek opportunities to increase shrubs. (Objective 5.1-204).
5. Provide variety in stand sizes, shape, crown closure, age structure, and interspersion. (Objective 5.1-202).
6. Manage for a minimum of 92,000 acres of aspen (double current aspen acres), and 16,000 acres of bur oak (approximately 33 percent increase). (Objective 201).
7. Manage for 122,000 acres of prairie grassland and 3,600 acres of meadow. (Objective 205)
8. Restore riparian shrub communities across the forest by 500 acres during the Plan period on sites capable of supporting this community. (Objective 214).

9. Prevent new infestations and manage to reduce established noxious-weed infestations. Treat at least 8,000 acres per year during the next ten years to limit noxious-weed infestations. (Objective 231).

The following treatments are necessary to meet the restoration objectives described above.

**Thinning, overstory removals, and selection cuts** via commercial timber sales.

Prescriptions include thinning-from-below, free thinning and overstory removals, some with reserves to create openings in the crown, increase spacing between trees, and release saplings. Result is anticipated to be increased tree vigor, increased tree size (diameter), more resistance to insect attack, and increased canopy height and reduced crown density (reduces probability of crown fire). Diversity will be enhanced by prescribed variation in tree spacing and size.<sup>4</sup> Sanitation will remove the most urgent bark beetle infested trees when appropriate. Treat an estimated 20-25,000 acres annually and remove about 183,000 ccf of sawtimber annually and about 6,000 ccf of POL.

**Pre-commercial thinning** of ponderosa pine saplings to increase tree growth and vigor and reduce fire hazard. Estimated area = 12-18,000 acres annually.

**Fuel treatment.** Mechanical treatments to masticate, crush, lop/scatter or yard slash. Total *integrated* treatment approximately 50,000 acres/year.

**Prescribed burning** including broadcast burns and pile burning. Effect will be to reduce ladder and surface fuels and improve vegetative diversity. Burns will also be used for controlling pine encroachment into grassland and meadows. Estimated treatment of 8-15,000 acres annually. Locate burns to meet strategic objectives to protect interface properties and resources, with limited financial resources.

**Enhance aspen clones** by pine removal and other potential silvicultural treatments. Estimated 300-500 acres per year.

**Enhance riparian areas** gained by adaptive grazing practices, planting and protection. Estimated 10 acres per year.

**Manage invasive weeds** by chemical and biological treatment before and after timber and fuel operations and by limiting overall disturbance. Estimated 8,000 to 10,000 acres annually.

### Proposed Treatments

Several forest restoration treatments have already been implemented within this broad landscape. Approximately 234,000 acres of integrated fuels treatment have been accomplished in the past 4 years (Fiscal Years 2006 to 2009) to mimic low intensity wildfires which have been excluded from the Black Hills for several decades. Approximately 24,000 acres of forest and meadows have also been restored where prescribed burning was used to reduce fuel loading, stimulate re-sprouting and improve ecosystem function in areas that have been outside historic fire regimes. These treatments have regenerated ecologically valuable hardwood stands, reduced meadow encroachment, improved grassland vigor, and reduced risks to watershed health from large scale uncharacteristic disturbances (e.g. large fires, insects and disease.) Thousands of acres of land have been treated to stop the spread or eradicate invasive plant species in and around the forest.

**Black Hills National Forest  
Collaborative Forest  
Landscape Restoration Project  
FY 2011 - FY2020  
Page 8 of 14**

<b>Restoration Treatment Summary</b>	<b>Estimated Forest Service Cost</b>	<b>Estimated Acres (NFS lands only)</b>
<b>Black Hills NF, FY 10</b>		
Restoration harvests	\$2,166,844	21,454
Hardwood enhancement	\$1,024,000	2,048
Meadow enhancement	\$175,800	1,172
Restoration thinning	\$2,919,360	7,798
Prescribed fire	\$1,552,000	6,208
Mechanical fuel treatment	\$403,000	510
Invasive Plants	\$1,099,300	6,175
Watershed improvement (Spring/Battle Ck Trail)	\$312,000	300
Riparian enhancement	\$620,000	20
Monitoring (proportion of Forest)	\$200,000	190,000
<b>TOTAL</b>	<b>\$10,472,304</b>	<b>235,685</b>

The proposed Collaborative Landscape Restoration Project builds upon this and other restoration and collaborative work that has already been completed or initiated. The goals are to improve landscape-level biodiversity, resiliency, and adaptability, to enhance recreational experiences, and to reduce risks for those living in the wildland-urban interface (WUI).

Restoration treatments will be used across the forest as determined by the specific project-level decision. Treatments will be completed with a combination of timber sales, stewardship contracts, service contracts, force-account, and cooperative agreements with the States, the Youth Natural Resources Program, and volunteers. Some treatments are already being implemented, while others will start in FY12 and early FY13, and the remainder will be completed over the next 10 years. The Watershed Condition Framework (WCF) will be used to prioritize which watersheds to work in first. The WCF will not be completed until the end of March, 2011. Priority watersheds will be selected in the WCF process and those would be the highest priority for treatment. In addition to the WCF, the most recent bark beetle survey will also be used to prioritize where treatment will occur.

Restoration harvests including commercial thinning will open tree crowns and provide variety in stand size, shape, crown closure, age structure and interspersed openings and provide for structural stage diversity in a variety of sizes and shapes. Ponderosa pine will appear more natural in clumps and sizes of trees with interspersed openings. Average tree size will increase through understory thinning. Trees and stands of trees will be more resistant to beetle attack and less likely to carry crown fire. Sanitation harvest will remove beetle infested trees when feasible and appropriate before their flight in mid-to late summer.

Isolated bark beetle treatments (treating outliers in an attempt to contain the spread of bark beetles) or spraying legacy trees to prevent mountain pine beetle attacks on healthy green trees.

Meadow enhancement treatments will remove ponderosa pine trees that have spread into natural meadows. Hardwood enhancement treatment will remove ponderosa pine from aspen stands thereby encouraging aspen regeneration, growth and expansion towards a goal to double aspen acreage across the forest.

Invasive Plant treatment will occur in project areas before and after harvest and prescribed fire treatments.

Realign trail and replace or install crossing structures on various creeks to resolve long-standing drainage and trail erosion and sedimentation problems.

Overtime, sediment deposition has occurred in Bismark, Horsethief and Lakota lakes. Recent surveys estimated the volume of accumulated sediment as 31,200 cubic meters in Bismark Lake, 23,400 cubic meters in Horsethief Lake and 10,950 cubic meters in Lakota Lake. This sediment has reduced the water quality and the amount of fish habitat available. It has also promoted the growth of cattails along the boardwalks and fishing piers, which has limited their use for fishing.

The Black Hills National Forest has received a \$536,000 grant through the National Scenic Byways Program to removed sediment from these lakes. The South Dakota Department of Game, Fish and Parks have also made a \$150,000 commitment to assist with sediment removal. The Forest Service needs to contribute \$139,000 as part of this collaborative project.

The following additional restoration treatments would be accomplished with the requested CFLRP funding in each of the ten years of this request. All of these activities will be covered by NEPA analysis and decision documents. Due to the anticipated late notification and funding for the first year, several of these cannot be accomplished before September 30 of the first year. These treatments have been denoted by an asterisk (they will be accomplished in FY2012-2019).

<b>Restoration Treatment</b>	<b>Acres</b>
*Isolated Beetle Infested Tree Felling	400
Hardwood Enhancement & Meadow Restoration (Prescribed Fire)	770
*Restoration Thinning/Sanitation/Fuels Reduction (Helicopter)	350
Watershed Restoration (Trail/ Stream Rehabilitation)	770
Invasive Plant Treatments	150
*Restoration Thinning	1,000
*Lake Enhancement	51
Monitoring	Yearly Report

## Collaboration and Multi-party Monitoring

Partners collaborating on this project include the National Forest Advisory Board (a federal advisory committee), National Park Service, Custer State Park, South Dakota Department of Agriculture, State of Wyoming, Norbeck Society, Black Hills Forest Resource Association, local elected officials, and others. The National Wild Turkey Federation and the Rocky Mountain Elk Foundation are interested and very active partners. This proposal was collaboratively developed and formally approved by the Black Hills National Forest Advisory Board (NFAB) on November 17, 2010.

In addition, Phase II Amendment to the 1997 Revised Forest Plan, the backbone of the Black Hill's restoration strategy, had significant collaboration in its development including: Seven counties in South Dakota and Wyoming, Tribal consultation with 12 tribes including the Lakota (Sioux), Cheyenne, Shoshoni, Crow, and South Dakota Department of Agriculture and the Department of Game, Fish & Parks and the Wyoming Game & Fish Department and the Wyoming Wildlife and Natural Resources Trust.

### **National Forest Advisory Board**

The NFAB is a 16-member board appointed by the Secretary of Agriculture that meets monthly, holds its own public meetings on occasion, and designates subcommittees on specific issues. It works with the Forest and the public to seek collaborative solutions and build public confidence in Forest planning and project implementation. The following interests are represented:

Nationally and regionally recognized environmental organizations, outdoor recreation, energy/mineral development, archaeological/historical interests, forest products industry, grazing interests, and nationally recognized sportsmen's group representatives; South Dakota and Wyoming state-elected office or officer's appointee; South Dakota or Wyoming county or local elected office; Tribal government-elected or appointed office; and South Dakota State and Wyoming natural resource agency official

The Board has been actively engaged since April 2003 through both the Phase II amendment to the 1997 Forest Plan and the April 2010 decision on the Forest-wide travel plan. It made recommendations related to forest diversity/species viability, fire and insect management, and successful strategies that are included in the final Record of Decision and FEIS of the Phase II Amendment. It served as the biomass subcommittee for options and potential markets and uses. It was consulted on interagency habitat, insect and fuels strategies in the Greater Rushmore Area in the Norbeck Wildlife Preserve.

Individual members/groups have been actively partnering with the Forest Service on a multitude of ecosystem restoration projects (e.g. Wyoming State Forestry is working with the Forest Service and private landowners to do forest restoration work across private and public ownership boundaries.)

### **Other Collaborators**

Our relationship with the States of South Dakota and Wyoming, from the Governor's offices to the agency specialists, are professional and productive.

We have annual formal consultation with tribes and more frequent meetings with groups such as the Black Hills Treaty Council meeting in May.

### **Multiparty Monitoring**

Annual monitoring reports of more than 16 critical items include agency and cooperator review and Advisory Board review and recommendations.

There is direct involvement of NFAB, interested agencies, and the public in inventory, monitoring, and evaluation related to project implementation, including the Black Hills Collaborative Forest Restoration projects.

Forestry Best Management Practices - Multi-party monitoring every two years with the State of South Dakota Department of Environment and Natural Resources, and in alternate years with the State of Wyoming Forestry Division.

Multi-party monitoring of watershed health, sensitive wildlife and plant species, management indicator species, and soils is conducted annually with Forest Service, Rocky Mountain Bird Observatory, Iowa State University, University of Missouri, University of Wyoming, South Dakota Game, Fish & Parks and Wyoming Game & Fish Department, Rocky Mountain Research Station, and others. This and other monitoring work will continue.

Success will be measured using existing target reporting systems, the vegetation and FACTS databases, and photographic records as presented internally, to cooperators, and the National Forest Advisory Board. Monitoring these projects will be done several ways:

The National Forest Advisory Board will participate on field reviews and annual review of Forest-wide monitoring results of more than 16 key items (number of items fluctuate by year) as they have done for last seven years.

SD and WY Best Management Practices multi-party monitoring program completed via Federal and State funds. The NFAB will be invited to participate as appropriate and the results will be reported at a regular meeting.

Interdisciplinary monitoring will be done by resource specialists on a project level.

### Utilization

Utilization of biomass removed in the restoration process is a key component to ensure the projects are cost effective and provide benefit to the local economy. The accelerated

implementation of the projects will produce 48,000 CCF ( hundred cubic feet) of sawtimber that will be utilized by sawmills in Hill City or Spearfish (South Dakota), or Hulett (Wyoming) or several other smaller sawmills. Byproducts from those mills are used for heating pellets (Spearfish Forest Products), are hauled to Dakota Panel (OSB/particle board) in Rapid City, or are shipped via train to Longview, Washington for pulp.

These projects will also produce 11,800 CCF of biomass available for a growing post/pole market in the Black Hills. The estimated value of forest product created by this project is \$5 million.

Various proposals have and are being considered in the Black Hills to increase biomass utilization. These include: 1) a pilot ethanol plant currently operating in Upton, Wyoming, 2) a cogeneration facility in Hill City and/or Spearfish, South Dakota, 3) on-site steam heating at the State Veteran's Home in Hot Springs, South Dakota, 4) biomass burner in lieu of natural gas drying of plywood by a local wood products company, and 5) additional on-site heating proposals and pellet manufacturing facilities. Off-site use would save an estimated \$570,000/year<sup>2</sup>. The restoration program would remove an estimated 1,600 piles annually. Producers would reduce their costs and the environmental effects of pile burning and rehabilitation would be considerably reduced, particularly if this material was used in lieu of natural gas or other less renewable natural resources. Interest in using this biomass is increasing, as the Forest Service continues to explore options to help these ventures be successful and to reduce the environmental footprint of the by-products of restoration forestry activities.

### Benefits to Local Communities

Western South Dakota and northeastern Wyoming rural communities in and around the Black Hills National Forest are dependent on publicly managed lands and the resources the restoration activities will provide. Tourism is a large part of the economy and jobs of the area; however, natural resource jobs are often the better paying jobs and provide a large part of the communities' identities and culture. Not only does the forest products industry support a way of life, it provides the National Forest, National Parks, State Park, and private individuals with economical alternatives to complete restoration activities. Without this vibrant industry, significantly less restoration activities could be afforded in the Black Hills.

Employment and jobs retained by the Black Hills Collaborative Forest Restoration Project are estimated between 325 and 480 (direct and indirect) jobs, at a rate of 100 to 150 jobs per CCF of biomass produced. An estimated 75 direct and indirect jobs would be created by the emerging small-diameter market and would be supported by the restoration projects with wages of \$2,375,000 based on the Treatments for Restoration Economic Analysis Tool (TREAT). The jobs maintained or created are typically full-time year-round and permanent with fringe benefits.

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<sup>2</sup> Annual brush disposal deposits (collections) between 1999 and 2009 ranged from \$538,510 to \$695,253.

Even during recent lumber market declines, local producers were able to retain most employees reflecting interest and dedication to their workforce.

Total forest industry employment in the Black Hills is approximately 1,500 jobs. Given our “island in the plains” setting, all forest industry jobs are interconnected, and the land treatments and products from this project will help to sustain the entire forest industry employment in the Black Hills. Job losses from reductions in volume in one project are more likely to cause a closure of a mill(s) or reduction of a shift instead of a smooth decline in the amount of work.

Employment or training opportunities are associated with the jobs generated by the restoration activities. Local producers provide training under the Central Rockies Sustainable Forestry Education Program. Training has been provided to workers employed or contracted in emerging small-diameter timber markets.

Youth employment and training (15-20 enrollees) is provided through the Youth Natural Resources Program (Youth Conservation Corp authority) in cooperation with the National Park Service (Devil’s Tower and Mt. Rushmore National Memorials), Boxelder Job Corps, and the Standing Rock, Cheyenne River, Yankton and Oglala Sioux Tribes.

All contractors or wood-processing facilities in the Black Hills are qualified small businesses under various authorities within the Small Business Administration. Several are women or minority owned. The restoration activities will help enhance these small businesses.

### Funding Plan

The Black Hills National Forest integrates its forest management, forest health, hazardous fuels, watershed management, wildlife habitat, and other appropriated funds and related trust and permanent funds to support restoration objectives. . The Forest is committed to restoration and will continue to use these and any other appropriate funds including partnership and CFLRP funds. Historic or even reduced funding levels would be ensure funds are available and used for the matching requirements under CFLRP for implementation and monitoring of restoration treatments on NFS lands. These regular appropriations, as well as trust and permanent funds will be specifically allocated to match CFLR Funds approved for the project for expenditure in FY2011 and 2012 (the year allocated). The Regional Forester and Forest Supervisor are committed to ensure funding for multiparty monitoring of ecologic, social and economic effects for at least 15 years after project implementation. See Attachment F for a dollar breakdown for the project and year by year.

### **USDI Funding**

No USDI funding is specifically proposed for inclusion in this project. The National Park Service is undertaking fuel and insect treatments in the Mount Rushmore National Memorial in FY10 and 11 under separate USDI funds. NPS treatment coincides with CFLRP treatments on adjacent NFS lands.

### **State of South Dakota and Wyoming Funding and USDA “All Lands” Approach**

The State of South Dakota in Custer State Park with cooperation with divisions of Resource Conservation and Forestry and Wildland Fire Suppression have invested \$445,500 in treating a mountain pine beetle infestation and resultant fuel loading on 3,765 acres. Such treatments are continuing in federal FY11 and likely into FY12.

The State of Wyoming through the Division of Forestry and Department of Corrections partner with the Forest Service in doing important natural resources work, including fire, tornado recovery and riparian restoration. Wyoming’s Honor Program provides in-kind labor support.

The States and Forest Service continue to seek funding for these projects under various federal and state budget authorities and appropriations. The Regional Forester has committed various funds in past FYs to the State of South Dakota and State of Wyoming for wildland fire and fuel treatment assistance.

USDA Secretary Vilsack promotes an “All Lands” approach to natural resources management. Funding presented here reflects Congressional intent that limits CFLRP funds to Federal lands. Future projects have potential under various Federal appropriations for application to all lands consistent with Congressional requirements.